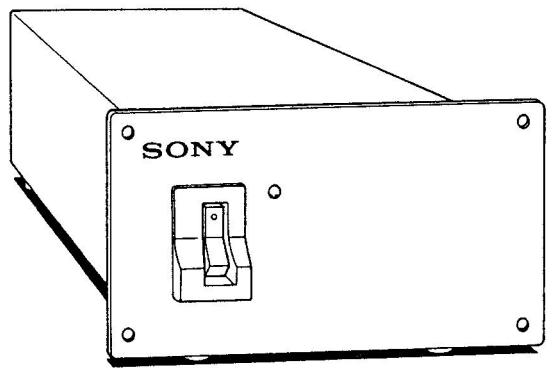
YS-W130/W130P

SERVICE MANUAL



SPECIFICATIONS

Power supply	YS-W130; 120V AC, 50/60Hz YS-W130P; 220 to 240V AC, 50Hz
Power consumption	15 W
Input connectors	CAMERA IN (BNC) Connect only to Sony SSC-C350/C350P or SSC-M350/M350CE camera SYNC IN (BNC) Composite sync signal: 4 Vp-p, 75 ohms terminated VS (video/sync): 1 Vp-p, 75 ohms terminated VBS (video/burst/sync): 1 Vp-p, 75 ohms terminated
Output connectors	VIDEO OUT 1 and 2 (BNC) Composite video signal: 1 Vp-p, 75 ohms terminated SYNC OUT (BNC) For loop-through output of the signal input to SYNC IN
Operating temperature	– 10°C to 50°C (14°F to 122°F)
Dimensions (w/h/d)	140 × 85 × 283 mm ($5^5/_8 \times 3^3/_8 \times 11\frac{1}{4}$ inches)
Weight	Approx. 2.1 kg (4 lb 10 oz)
Accessory supplied	Operation manual (1)

Design and specifications are subject to change without notice.

CAMERA ADAPTOR

SONY

FEATURES

The YS-W130/W130P camera adaptor is connected to a Sony SSC-C350/C350P or SSC-M350/M350CE video camera, and provides the power supply and external synchronizing signal to the camera while also transmitting the camera output video signal to a monitor.

Use only the Sony SSC-C350/C350P and SSC-M350/M350CE for a video camera to be connected.
When you connect other video camera, the system does not operate.

- Only a single 75-ohm coaxial cable connection to the camera is needed. This cable carries the power supply, synchronizing signal and video output signal.
- The unit has a built-in cable compensation circuit, which automatically switches the video signal compensation level among three values, depending on the length of the cable.
- When using a number of cameras, you can use the synchronizing video signal supplied from the first camera to synchronize all the other cameras connected in the system.

WARNING !!

AN ISOLATION TRANSFORMER SHOULD BE USED DURING ANY SERVICE TO AVOID POSSIBLE SHOCK HAZARD, BECAUSE OF LIVE CHASSIS.

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION!!

AFIN D'EVITER TOUT RISQUE D'ELECTROCUTION PROVENANT D'UN CHÂSSIS SOUS TENSION, UN TRANSFORMATEUR D'ISOLEMENT DOIT ETRE UTILISÉ LORS DE TOUT DÉPANNAGE.

ATTENTION AUX COMPOSANTS RELATIFS À LA SÉCURITÉ!!

LES COMPOSANTS IDENTIFIÈS PAR UNE TRAME ET PAR UNE MARQUE ⚠ SUR LES SCHÉMAS DE PRINCIPE, LES VUES EXPLOSÉES ET LES LISTES DE PIECES SONT D'UNE IMPORTANCE CRITIQUE POUR LA SÉCURITÉ DU FONCTIONNEMENT. NE LES REMPLACER QUE PAR DES COMPOSANTS SONY DONT LE NUMÉRO DE PIÉCE EST INDIQUÉ DANS LE PRÉSENT MANUEL OU DANS DES SUPPLÉMENTS PUBLIÉS PAR SONY.

SAFETY CHECK-OUT

(US model only)

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Check that all control knobs, shields, covers, ground straps, and mounting hardware have been replaced. Be absolutely certain that you have replaced all the insulators.
4. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
5. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
6. Check the line cord for cracks and abrasion. Recommend the replacement of any such line cord to the customer.
7. Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

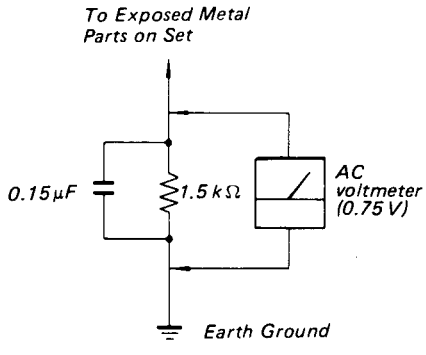


Fig. A. Using an AC voltmeter to check AC leakage.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microampers). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2 V AC range are suitable. (See Fig. A)

HOW TO FIND A GOOD EARTH GROUND

A cold-water pipe is guaranteed earth ground; the cover-plate retaining screw on most AC outlet boxes is also at earth ground. If the retaining screw is to be used as your earth-ground, verify that it is at ground by measuring the resistance between it and a cold-water pipe with an ohmmeter. The reading should be zero ohms. If a cold-water pipe is not accessible, connect a 60–100 watts trouble light (not a neon lamp) between the hot side of the receptacle and the retaining screw. Try both slots, if necessary, to locate the hot side of the line, the lamp should light at normal brilliance if the screw is at ground potential. (See Fig. B)

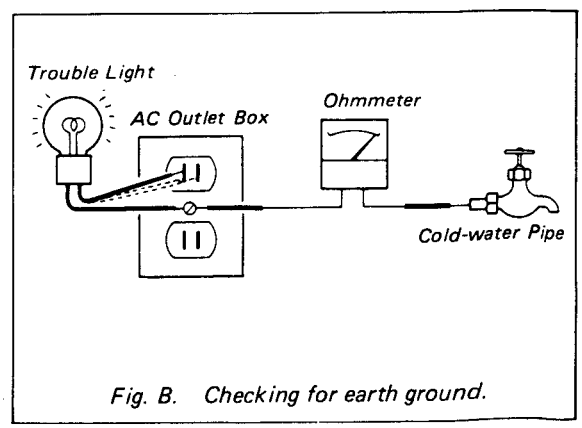


Fig. B. Checking for earth ground.

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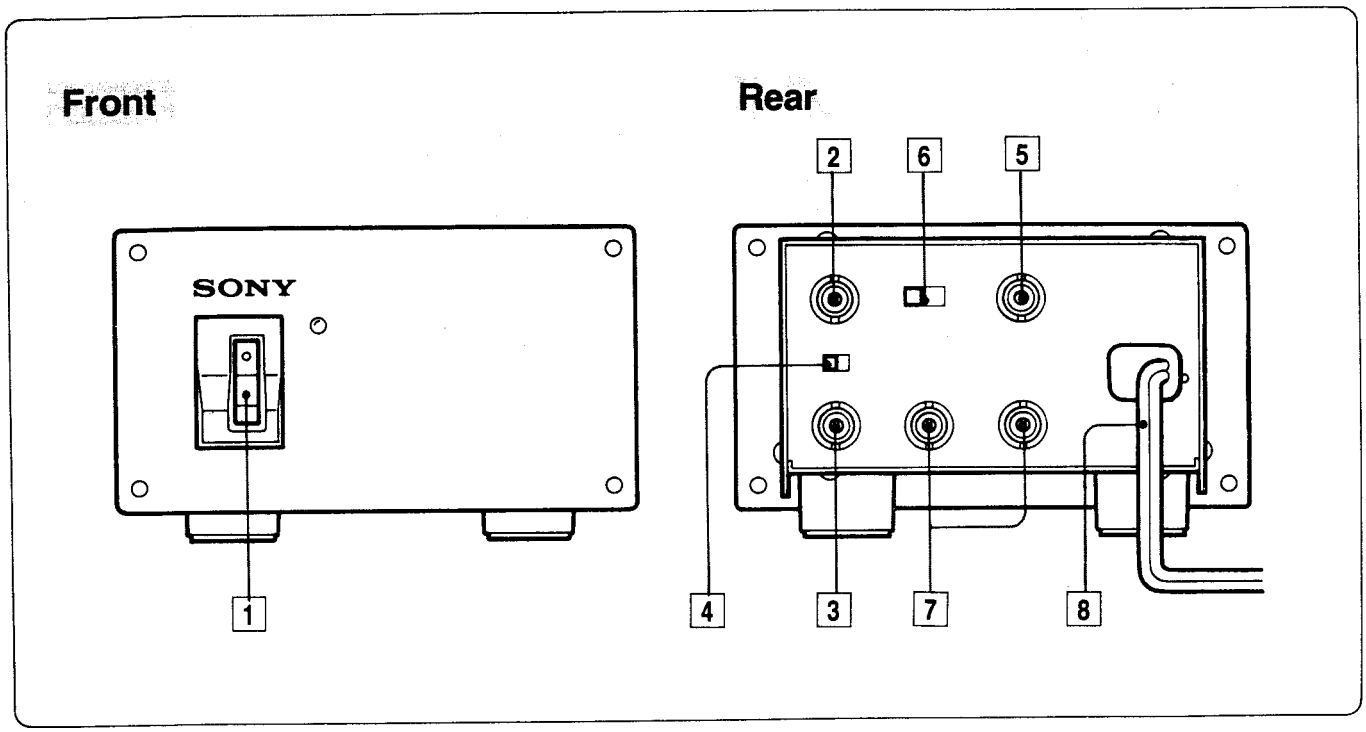
SECTION 1
GENERAL

1-1. LOCATION AND FUNCTION OF PARTS



1 POWER switch
This switches the power supply on and off.

2 SYNC IN connector (BNC)
Connect an external synchronizing signal (or video signal for synchronization) to this connector for camera synchronization.

3 SYNC OUT connector (BNC)
The synchronizing signal input to the SYNC IN connector 2 is output unaltered from this connector.

4 75Ω switch
This switch controls the 75-ohm termination of the SYNC IN connector.
- When using the SYNC IN connector only, set the switch to ON.
- When using the SYNC IN and SYNC OUT connectors, set the switch to OFF.

Note

If you are using neither the SYNC IN nor SYNC OUT connector, set the switch to ON.

5 CAMERA IN connector (BNC)
Connect to the DC IN.VS IN/VIDEO OUT connector of the SSC-C350/C350P or SSC-M350/M350CE camera.

6 CABLE COMP switch
This controls the compensation for signal loss in the cable connection to the camera. Set the switch depending on the cable type and length as in the following table.

Switch setting / Cable type	1	2	3
RG-59B/U (3C-2V)	100 m (328 ft) max.	200 m (656 ft) max.	300 m (984 ft) max.
RG-6A/U (5C-2V)	160 m (524 ft) max.	330 m (1082 ft) max.	500 m (1640 ft) max.
RG-11A/U (7C-2V)	200 m (656 ft) max.	400 m (1312 ft) max.	600 m (1968 ft) max.

7 VIDEO OUT 1 and 2 connectors (BNC)
Connect to the video input connector of a video monitor. The video signal input to the CAMERA IN connector 5 is output.

8 Power cable
Connect to a 120V AC (YS-W130)/220 to 240V AC (YS-W130P) outlet.

Notes
- If you connect a camera to this unit after switching the power on, it will not operate. Be sure to complete the connections before switching the power on.
- If you switch the power off then want to switch it back on, wait 3 or 4 seconds before turning the power switch on.

1-2. CONNECTIONS

Notes on connections

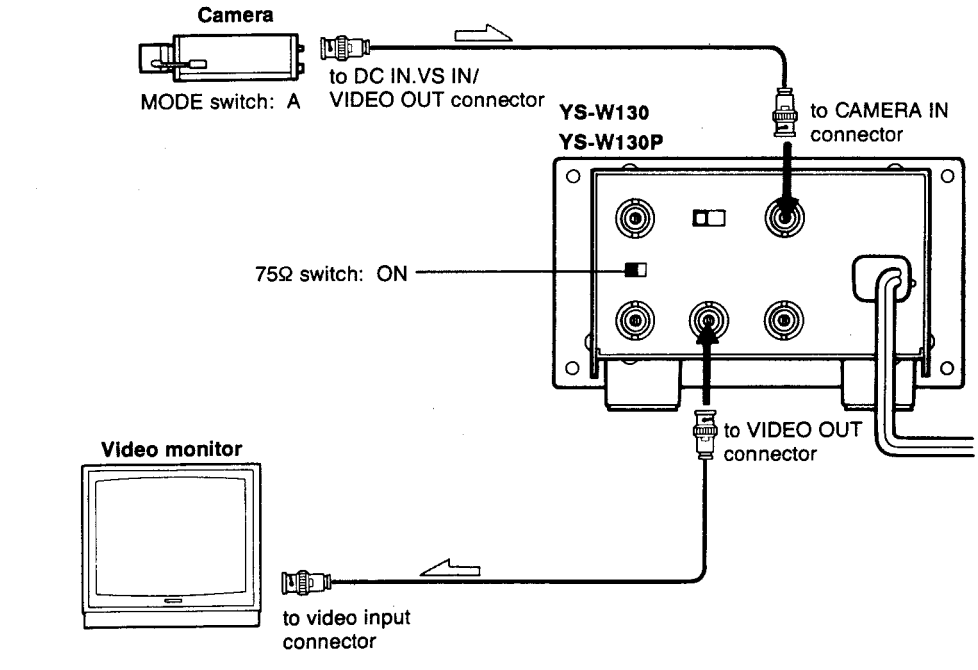
- This unit will only operate when connected to a Sony SSC-C350/C350P or SSC-M350/M350CE video camera. When marking the connections, refer also to the operation manual for the SSC-C350/C350P or SSC-M350/M350CE video camera.
- Turn off all of the power switches while making the system connections. If you connect a camera to this unit after switching the power on, it will not be supplied with power.
- Use a 75-ohm coaxial cable for the connection to the video camera. If the cable is too long the system may not operate normally. Follow the limits in the table below, and also be sure to set the cable compensation (CABLE COMP) switch correctly.

Cable type	RG-59B/U (3C-2V)	RG-6A/U (5C-2V)	RG-11A/U (7C-2V)
Maximum length	300 m (984 ft)	500 m (1640 ft)	600 m (1968 ft)

- The cable connecting this unit to the video camera carries the power supply and synchronizing signal in addition to the camera output video signal. It is therefore not possible to connect a booster or other device in the cable.

Operating with a single camera and single monitor

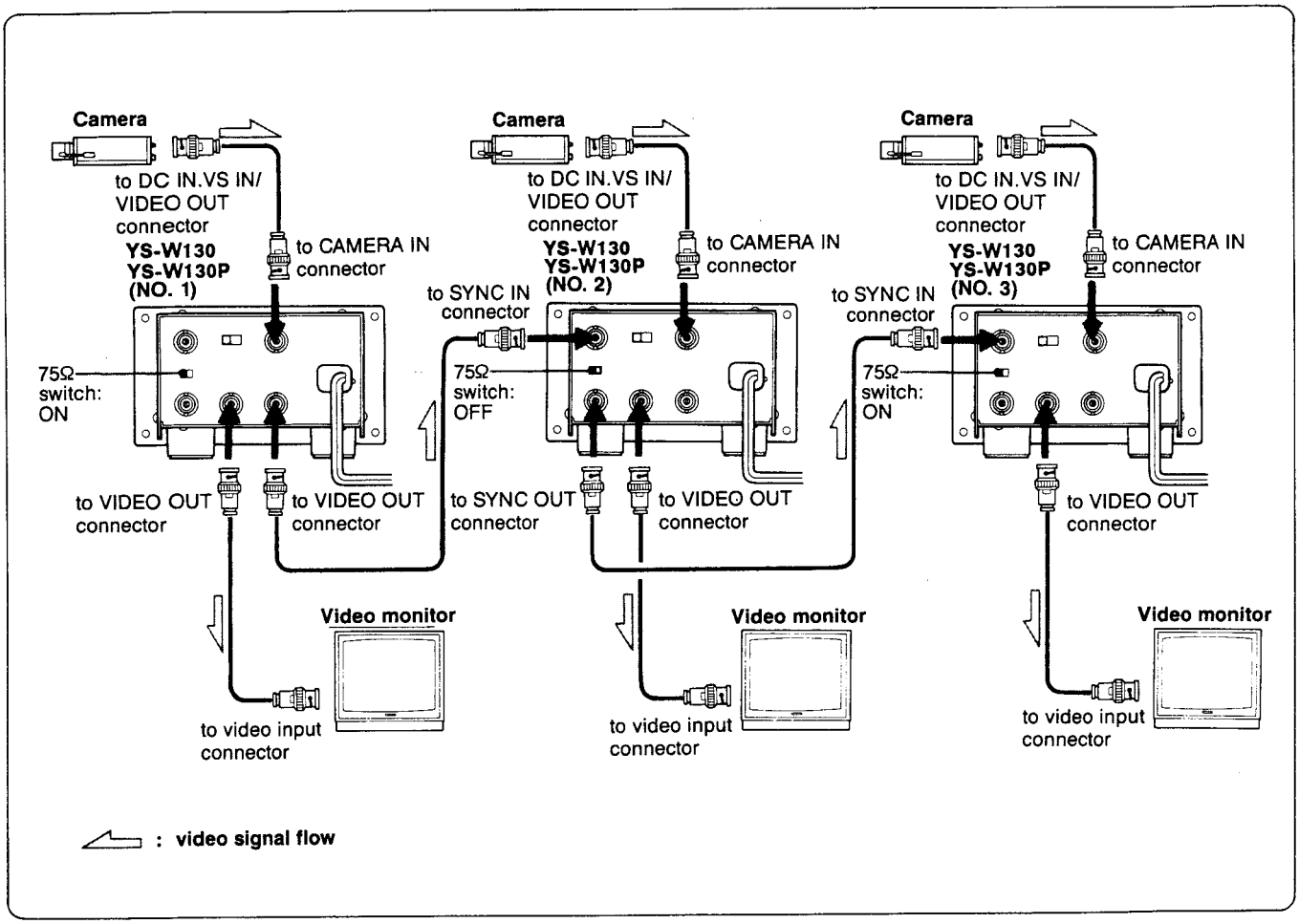
Set the camera MODE switch to A, and make all the connections before switching the POWER switch of this unit on.



Connecting a number of camera adaptors

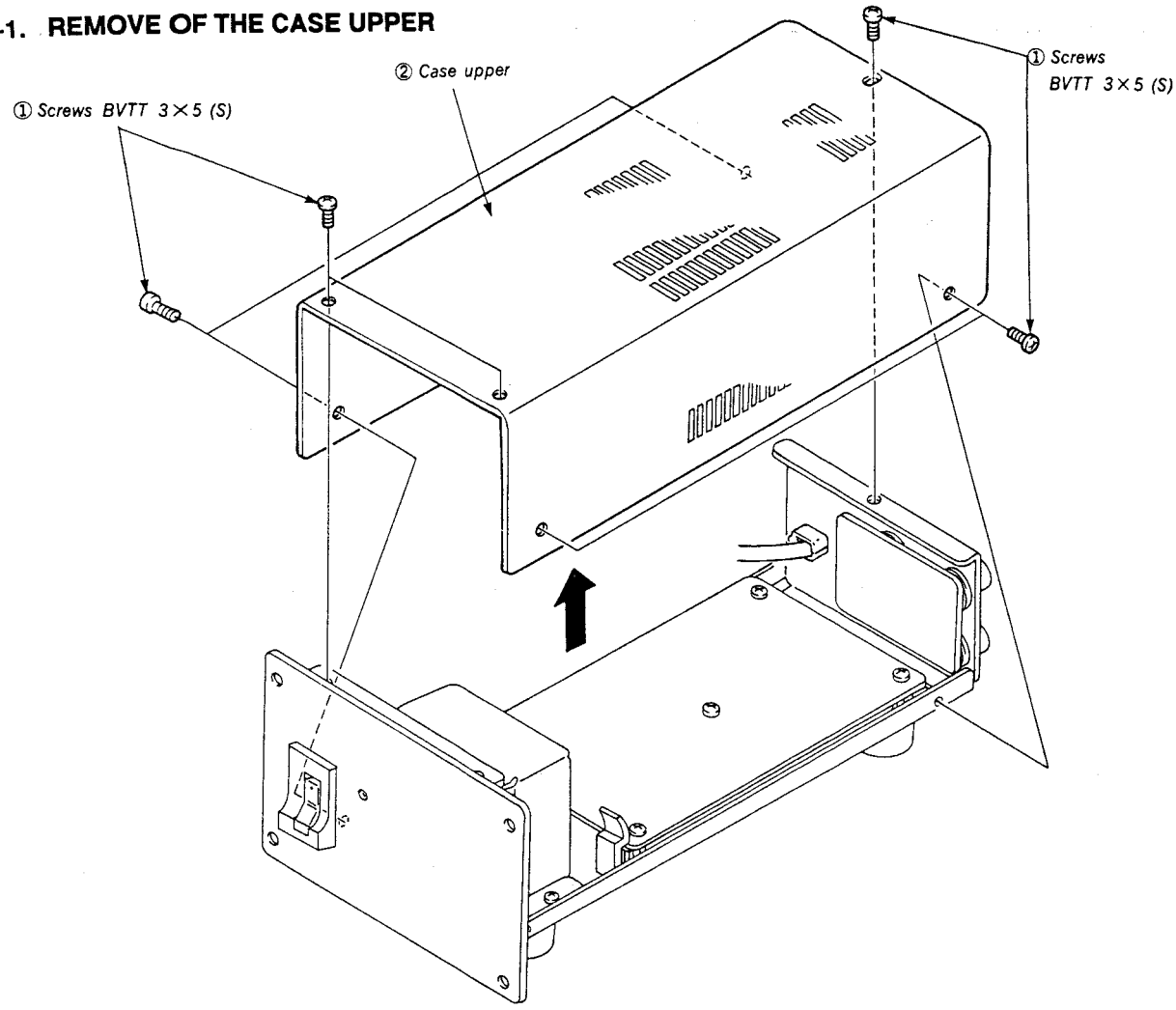
The synchronizing video signal supplied from the camera connected to the first camera adaptor can be used for synchronizing the other cameras.

Example: three camera system

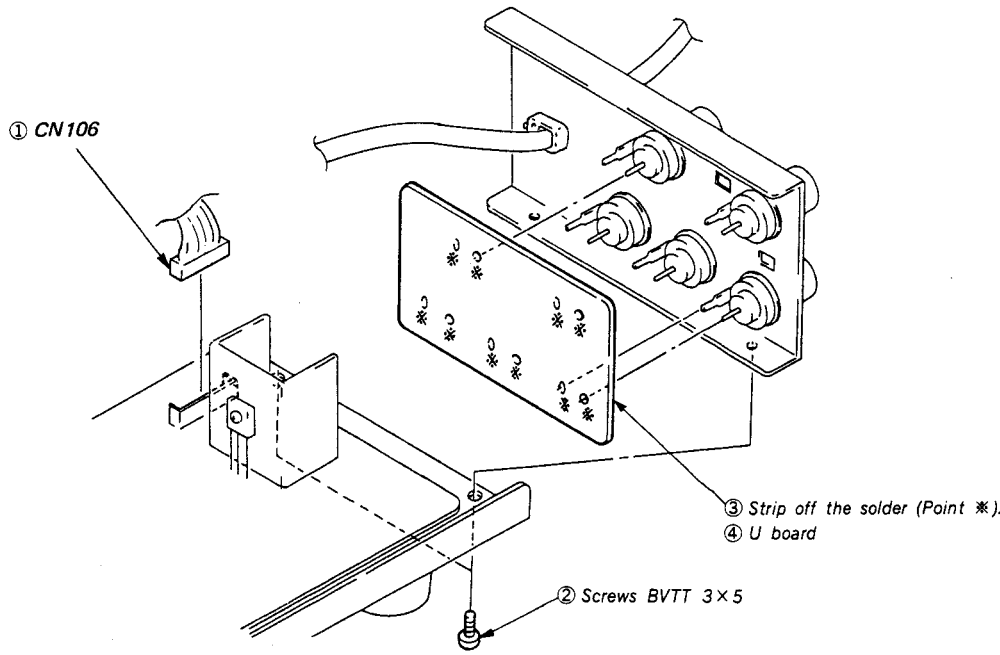


SECTION 2
DISASSEMBLY

2-1. REMOVE OF THE CASE UPPER



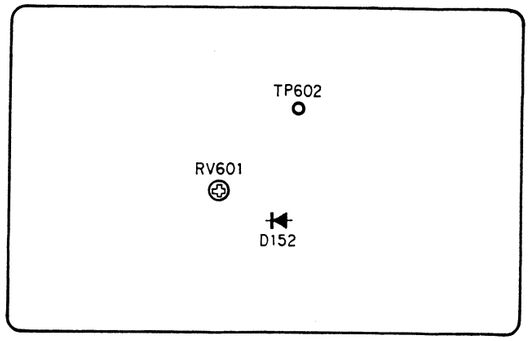
2-2. REMOVE OF THE U-1 BOARD



SECTION 3
ELECTRICAL ADJUSTMENT

3-1. A-1 BOARD ADJUSTMENT

Component side



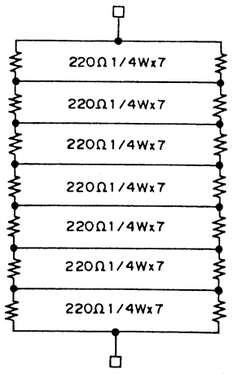
Voltage Adjustment (RV601)

1. Set the AC power supply to 120V (YS-W130)/220V (YS-W130P).
2. Connect anode of diode D152 to ground line.
3. Connect dummy A to CAMERA IN terminal (CN301).
4. Connect DC voltmeter between TP602 and ground.
5. Turn on the power.
6. Adjust RV601 so that the voltage at TP602 is 35 ± 0.3 Vdc.
7. Disconnect dummy A, and disconnect anode of D152 from the ground.

dummy A

resistance 220 Ω /10W

(example)



SECTION 4
CIRCUIT DESCRIPTION

[Power Supply Block]

AC35V and AC17.5V are supplied from the power supply trans. PT1. AC35V is rectified in the D601 and stabilized in the Q601. (The output voltage is adjusted in the RV601.) Then the stabilized voltage of the high impedance output is output to the camera with the external SYNC signal. Also, AC17.5V is stabilized to 12V in the IC601, and used as the circuit power supply.

[Video Signal Process Block]

The video signal input by the camera undergoes DC cut and is terminated in the R206 (75Ω), then cancels the external SYNC signal at the differential amplifier (IC202). After that, it is clamped at the Q102, amplified at the Q106 and 107, and output through the buffer to the VIDEO OUT 1 and 2 terminal.

[External SYNC Signal Process Block]

The COMPOSITE SYNC is separated in the IC201 from the SYNC signal (or video signal) input by the SYNC IN terminal, and goes through the video amplifier (IC202) and the R206 (75Ω), then is input to the camera with the power supply.

[Cable Compensation Circuit]

Select the gain and frequency response of the Q106 and Q107 from the three levels according to the cable length.

[SYNC Detection Protective Circuit]

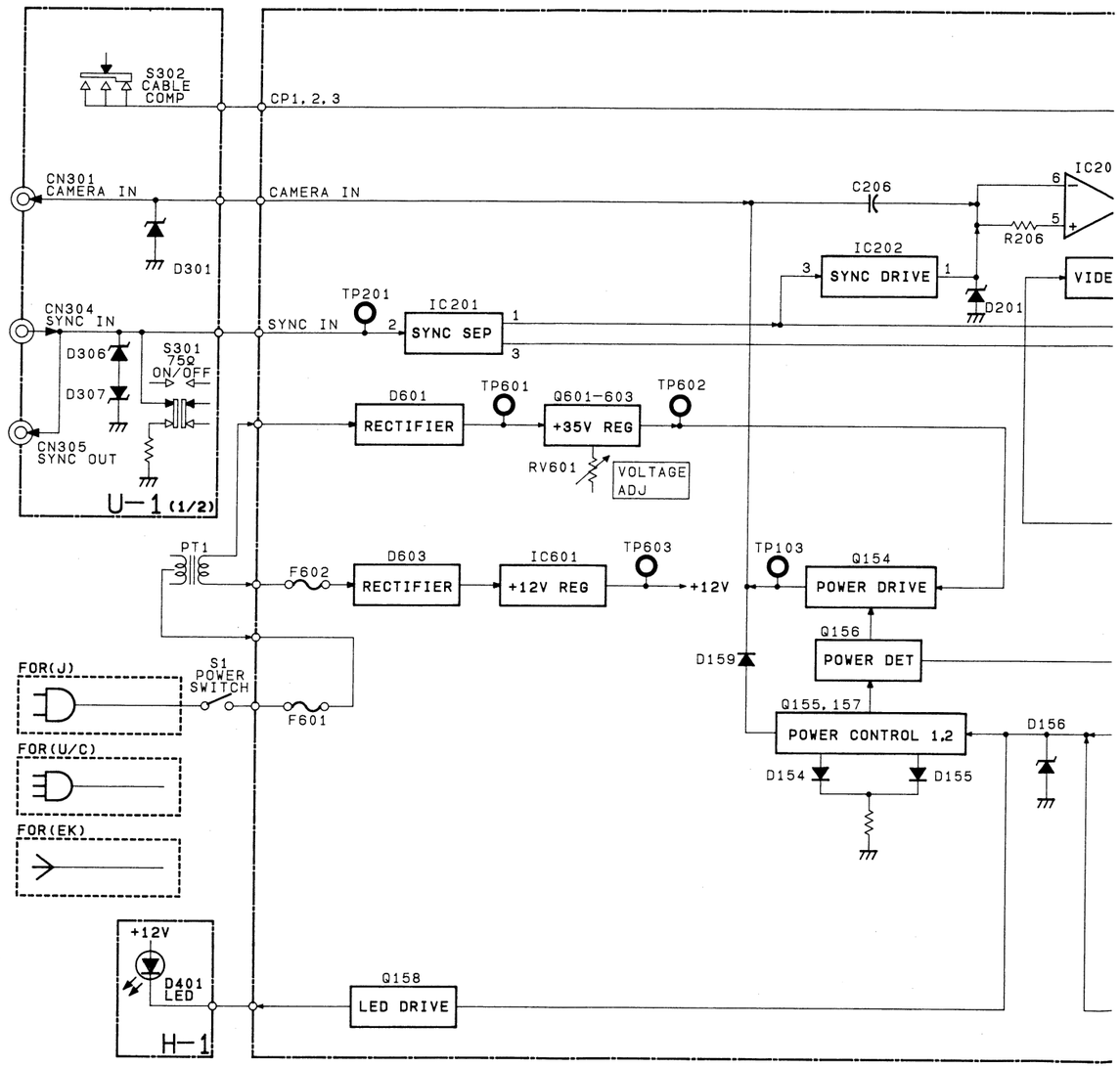
If the CAMERA IN terminal receives no input video signal (SYNC signal), the Q154 cuts off the current according to the Q152 and Q153 detection.
Successively, the Q158 also cuts off the current, and the LED lamp becomes faint.

[No-load Detection Circuit]

The Q160 and Q161 detect the load current, and if the current is found to be no-load, the Q154 cuts it off and stops the output. (faint LED)

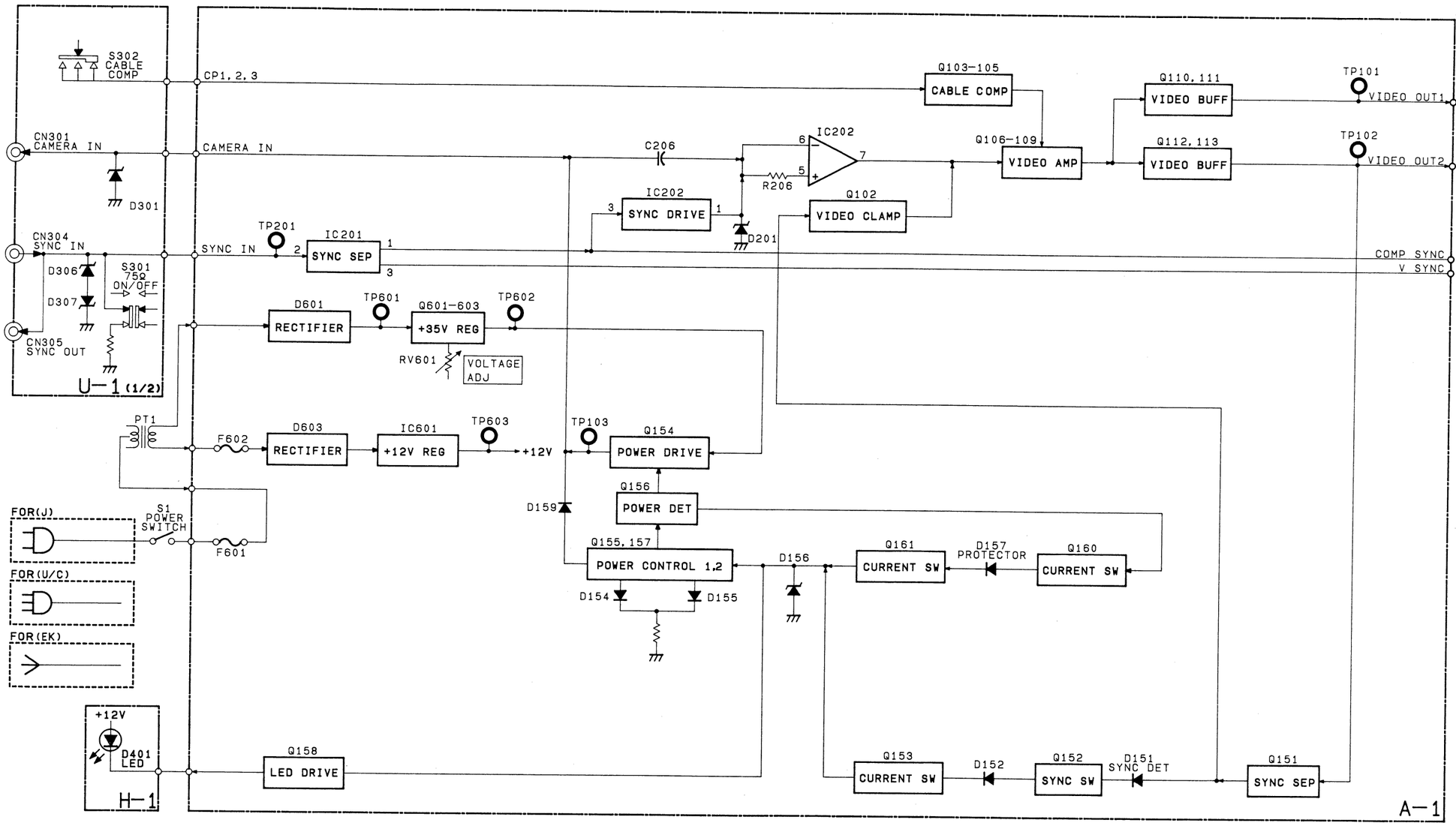
SECTION 5
DIAGRAMS

5-1. BLOCK DIAGRAM

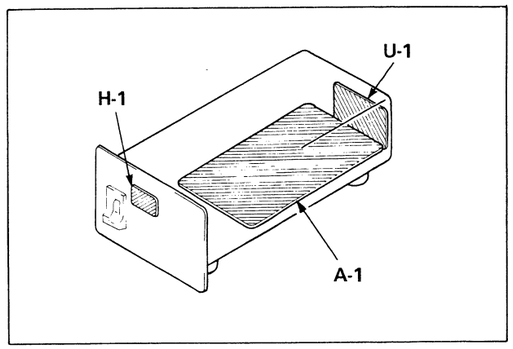


SECTION 5
DIAGRAMS

5-1. BLOCK DIAGRAM



5-2. CIRCUIT BOARDS LOCATION



5-3. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAM

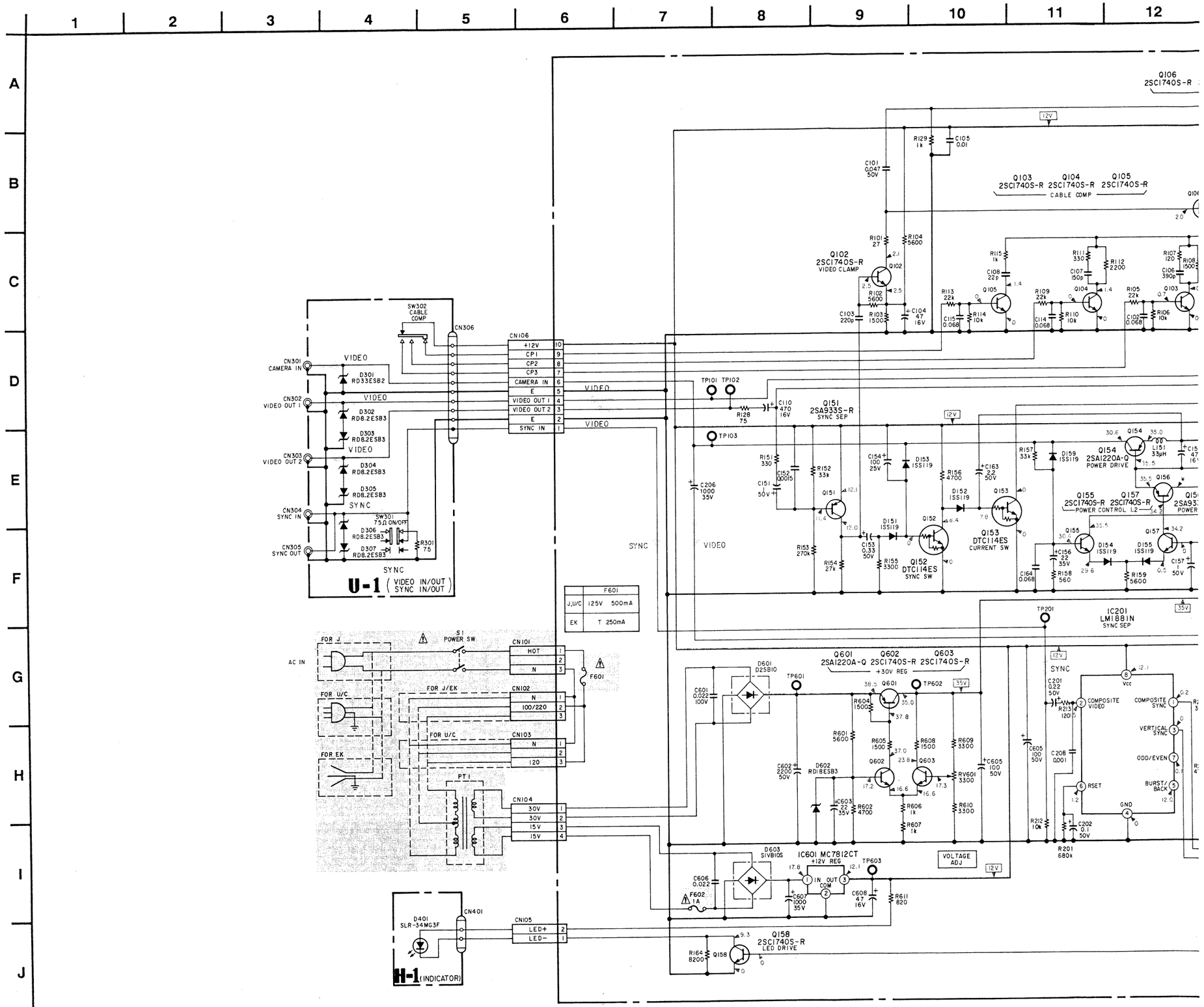
Note:

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

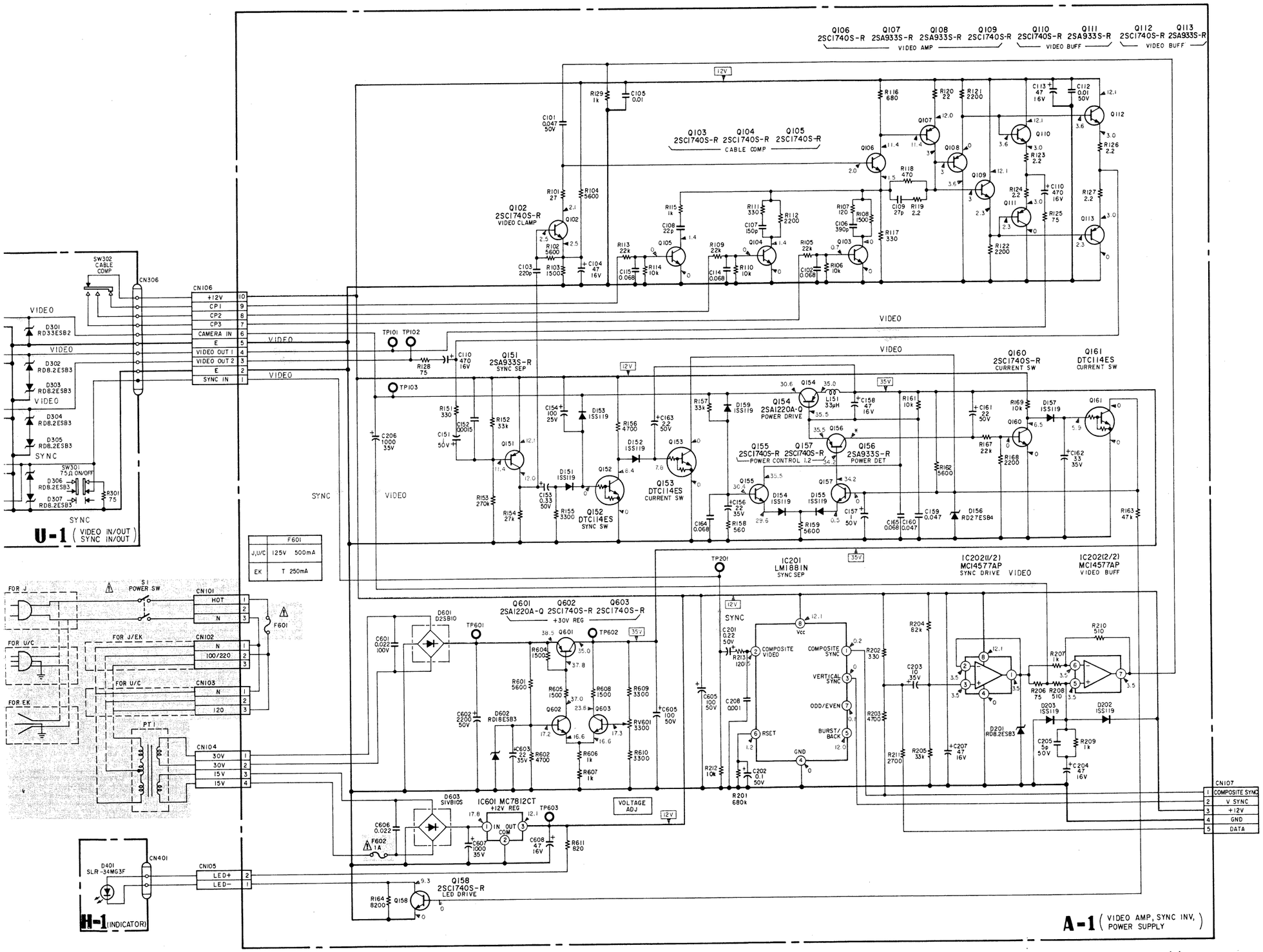
- All capacitors are in μF unless otherwise noted. pF : μμF. 50V or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, 1/4W unless otherwise noted. kΩ: 1000Ω, MΩ: 1000kΩ.
- [ ] : panel designation.
- [ ] : adjustment for repair.
- Voltages are dc between ground and measurement points.
- All voltages are measured between the measurement point and ground without loading. (BNC connector)
- Readings are taken with a digital multimeter (DC10MΩ).
- Voltage variations may be noted due to normal production tolerances.
- : B+ bus.
- : Signal path.

Reference information

RESISTOR	: RN	METAL FILM
	: RC	SOLID
	: FPRD	NONFLAMMABLE CARBON
	: FUSE	NONFLAMMABLE FUSIBLE
	: RS	NONFLAMMABLE WIREWOUNO
	: RB	NONFLAMMABLE CEMENT
COIL	: LF-8L	MICRO INDUCTOR
CAPACITOR	: TA	TANTALUM
	: PS	STYROL
	: PP	POLYPROPYLENE
	: PT	MYLAR
	: MPS	METALIZED POLYESTER
	: MPP	METALIZED POLYPROPYLENE
	: ALB	BIPOLAR
	: ALT	HIGH TEMPERATUNE
	: ALR	HIGH RIPPLE

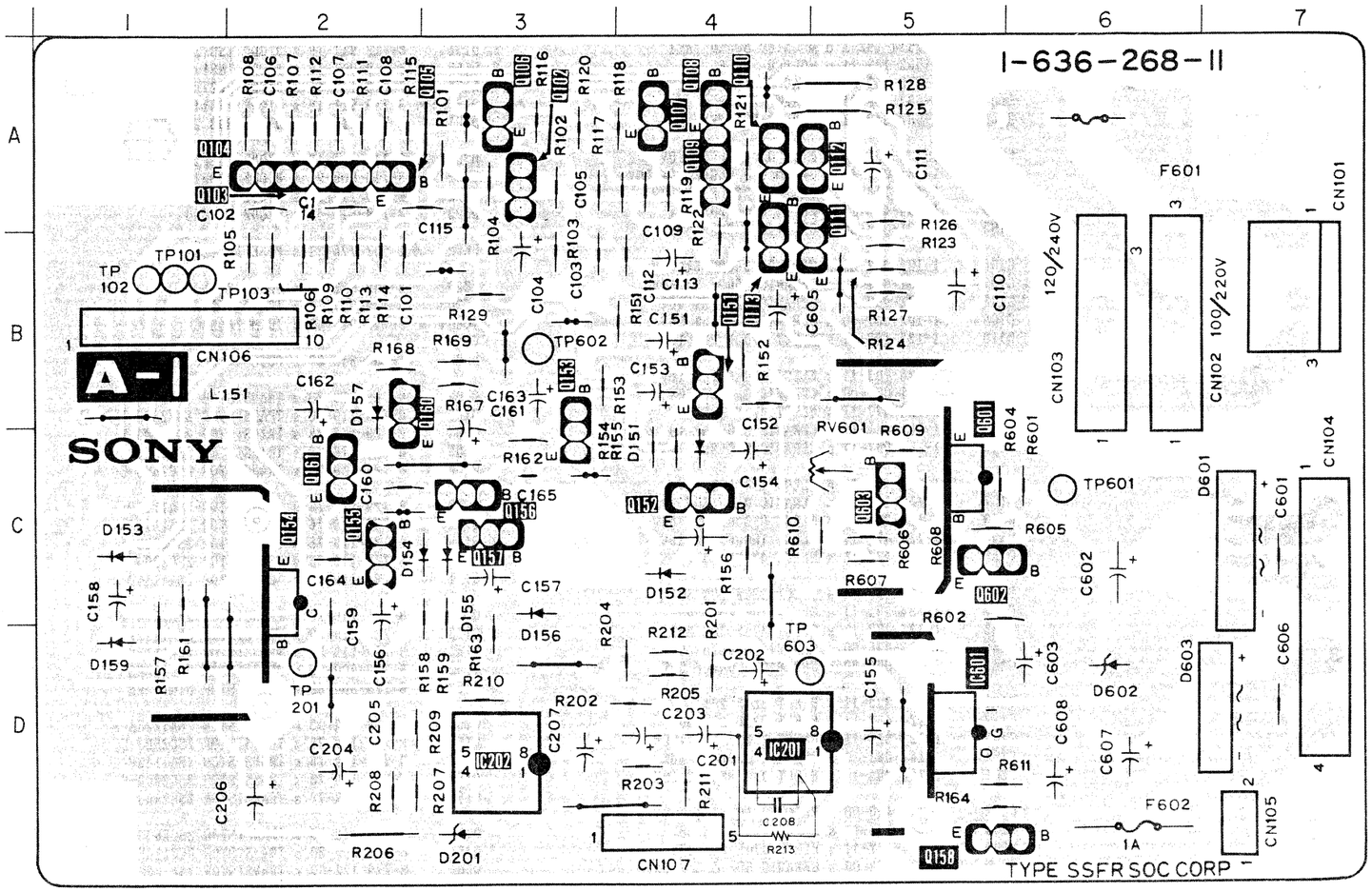


4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

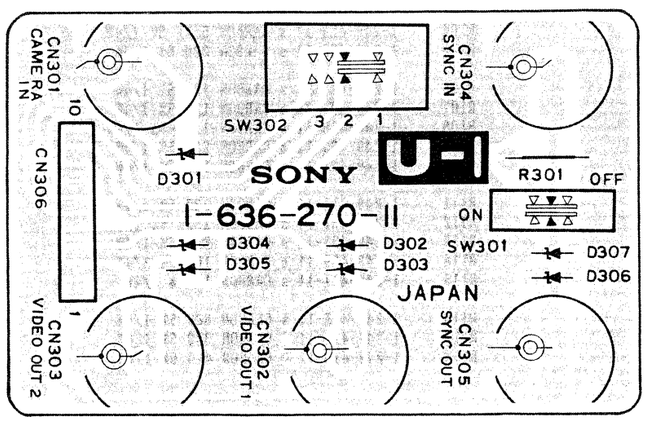


– A-1 Board – — Conductor Side —

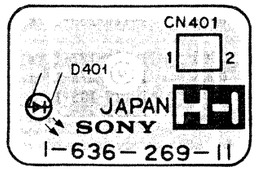
(VIDEO AMP, SYNC INV, POWER SUPPLY) A-1 (VIDEO IN/OUT SYNC IN/OUT) U-1 (INDICATOR) H-1



– U-1 Board – — Conductor Side —



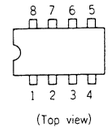
– H-1 Board – — Conductor Side —



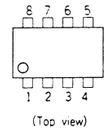
IC		TP	
IC201	D-4	TP101	B-1
IC202	D-3	TP102	B-1
IC601	D-5	TP103	B-1
		TP201	D-2
TRANSISTOR		TP601	C-6
Q102	A-3	TP602	B-3
Q103	A-2	TP603	D-4
Q104	A-2		
Q105	A-2		
Q106	A-3		
Q107	A-4		
Q108	A-4		
Q109	A-4		
Q110	A-4		
Q111	B-5		
Q112	A-5		
Q113	B-4		
Q151	B-4		
Q152	C-4		
Q153	C-3		
Q154	C-2		
Q155	C-2		
Q156	C-3		
Q157	C-3		
Q158	D-5		
Q160	B-2		
Q161	B-2		
Q601	C-5		
Q602	C-5		
Q603	C-5		
DIODE			
D151	C-4		
D152	C-4		
D153	C-1		
D154	C-3		
D155	C-3		
D156	D-3		
D157	B-2		
D159	D-1		
D201	D-3		
D601	C-7		
D602	D-6		
D603	D-7		
VARIABLE RESISTOR			
RV601	C-5		

5-4. SEMICONDUCTORS

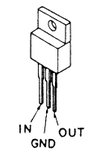
LM1881N



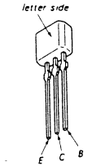
MC14577AP



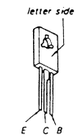
MC7812CT



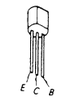
2SA1175-HFE
2SC2785-HFE



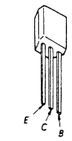
2SA1220A-P
2SA1220A-Q



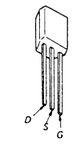
2SA933S-R



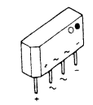
2SC1740S-R
DTC114ES
1SS119
RD18ES-B3
RD27ES-B4
RD8.2ES-B3



D2SB10
D2SB20



S1VB10
S1VB40



SECTION 6
EXPLODED VIEWS

【NOTE】

· Items with no part number and no description are not stocked because they are seldom required for routine service.

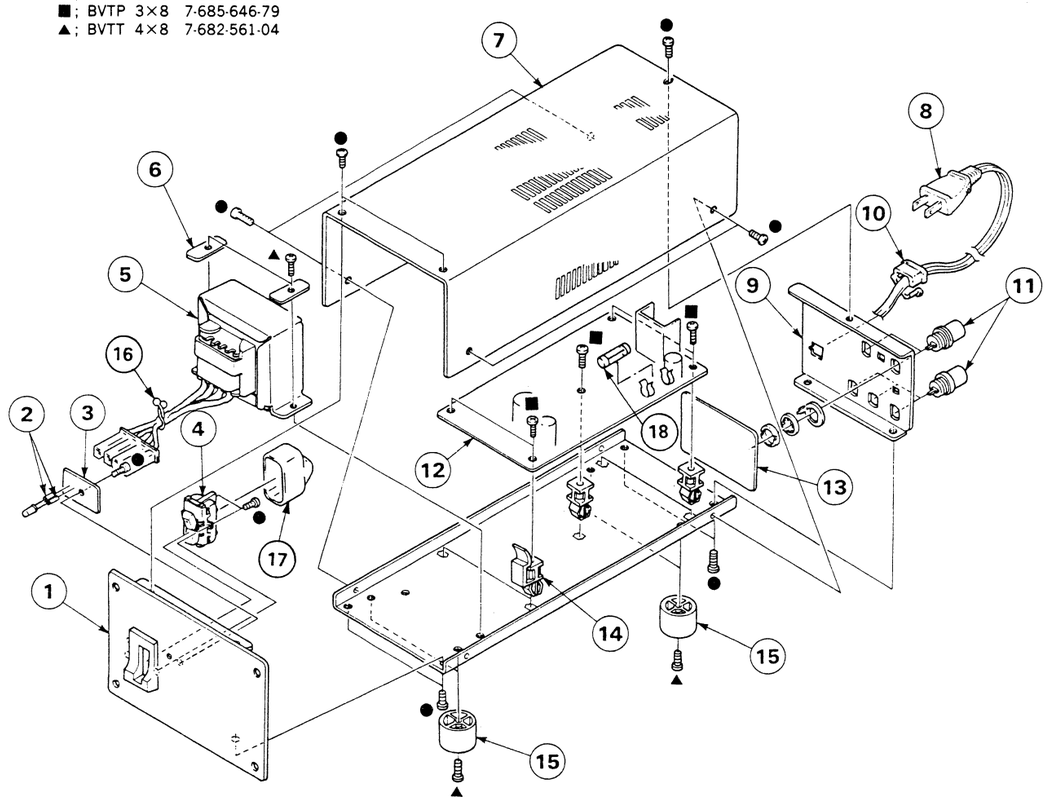
· All resistors are in ohms.

· Items marked "o" in the SP column are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

The components identified by mark ⚠ are critical for safety. Replace only with part number specified.

6-1. MAIN SECTION

●; BVTT 3×5 7-685-870-09
■; BVTP 3×8 7-685-646-79
▲; BVTT 4×8 7-682-561-04



Ref. No. or Q'ty	Part No.	SP	Description
1	X-3165-044-1	o	PANEL ASSY, FRONT (YS-W130)
	X-3165-045-1	o	PANEL ASSY, FRONT (YS-W130P)
2	4-391-059-01	s	TUBE, UL
3	1-636-269-11	o	PC BOARD, H-1
4	⚠1-570-744-21	s	SWITCH, AC POWER
5	⚠1-449-857-11	s	TRANSFORMER, POWER (YS-W130)
	⚠1-449-858-11	s	TRANSFORMER, POWER (YS-W130P)
6	4-391-060-01	s	RETAINER, TRANSFORMER
7	4-391-064-01	o	CASE, UPPER
8	⚠1-556-415-00	s	3P POWER CORD (YS-W130)
	⚠1-575-192-12	s	CORD, POWER (YS-W130P)
9	3-165-279-01	o	PANEL, REAR
10	⚠3-005-073-00	s	BUSHING
11	1-562-382-41	o	CONNECTOR, BNC
12	A-7514-192-A	o	MOUNTED PCB, A-1
13	1-636-270-11	o	PC BOARD, U-1
14	4-321-929-00	o	HOLDER, PC BOARD
15	X-3316-715-1	s	FOOT ASSY
16	2-056-665-00	o	HOLDER, WIRE (PURCE LOCK 5 DIA)
17	4-381-806-01	o	COVER, SWITCH
18	⚠1-532-737-11	s	FUSE, GLASS TUBE (YS-W130)
	⚠1-532-614-00	s	FUSE, TIME-LAG (YS-W130P)

SECTION 7
ELECTRICAL PARTS LIST

A-1 BOARD

(A-1 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-7514-192-A	o	MOUNTED BOARD, A-1
2pcs	⚠1-533-189-11	o	HOLDER, FUSE
2pcs	4-026-251-00	o	SPACER, INSULATING
1pc	7-682-148-01	s	SCREW +P 3X8
2pcs	7-682-948-01	s	SCREW +PSW 3X8
C101	1-136-161-00	s	FILM 0.047uF 5% 50V
C102	1-161-061-11	s	CERAMIC 0.068uF 10% 50V
C103	1-102-978-00	s	CERAMIC 220PF 5% 50V
C104	1-124-477-11	s	ELECT 47uF 20% 25V
C105	1-101-004-00	s	CERAMIC 0.01uF 50V
C106	1-102-822-00	s	CERAMIC 390PF 5% 50V
C107	1-101-361-00	s	CERAMIC 150PF 5% 50V
C108	1-102-959-00	s	CERAMIC 22PF 5% 50V
C109	1-102-961-00	s	CERAMIC 27PF 5% 50V
C110	1-126-103-11	s	ELECT 470uF 20% 16V
C111	1-126-103-11	s	ELECT 470uF 20% 16V
C112	1-101-004-00	s	CERAMIC 0.01uF 50V
C113	1-124-477-11	s	ELECT 47uF 20% 25V
C114	1-161-061-11	s	CERAMIC 0.068uF 10% 50V
C115	1-161-061-11	s	CERAMIC 0.068uF 10% 50V
C151	1-124-791-11	s	ELECT 1uF 20% 50V
C152	1-102-119-00	s	CERAMIC 0.0015uF 10% 50V
C153	1-124-252-00	s	ELECT 0.33uF 20% 50V
C154	1-124-478-11	s	ELECT 100uF 20% 25V
C155	1-124-477-11	s	ELECT 47uF 20% 25V
C156	1-126-233-11	s	ELECT 22uF 20% 50V
C157	1-124-791-11	s	ELECT 1uF 20% 50V
C158	1-124-477-11	s	ELECT 47uF 20% 25V
C159	1-101-006-00	s	CERAMIC 0.047uF 50V
C160	1-101-006-00	s	CERAMIC 0.047uF 50V
C161	1-126-233-11	s	ELECT 22uF 20% 50V
C162	1-124-482-11	s	ELECT 33uF 20% 35V
C163	1-124-925-11	s	ELECT 2.2uF 20% 100V
C164	1-161-061-11	s	CERAMIC 0.068uF 10% 50V
C201	1-124-464-11	s	ELECT 0.22MF 20% 50V
C202	1-124-463-00	s	ELECT 0.1uF 20% 50V
C203	1-126-096-11	s	ELECT 10uF 20% 35V
C204	1-124-477-11	s	ELECT 47uF 20% 25V
C205	1-102-942-00	s	CERAMIC 5PF 0.5PF 50V
C206	1-126-105-11	s	ELECT 1000 20% 35V
C207	1-124-477-11	s	ELECT 47uF 20% 25V
C208	1-102-074-00	s	CERAMIC 0.001uF 10% 50V
C601	1-106-375-12	s	MYLAR 0.022uF 10% 100
C602	1-126-977-11	s	ELECT 2200uF 20% 50V
C603	1-126-233-11	s	ELECT 22uF 20% 50V
C605	1-124-122-11	s	ELECT 100 20% 50V
C606	1-106-375-12	s	MYLAR 0.022uF 10% 100
C607	1-126-105-11	s	ELECT 1000 20% 35V
C608	1-124-477-11	s	ELECT 47uF 20% 25V
CN101	⚠1-564-917-11	o	PIN, CONNECTOR 3P
CN102	⚠1-506-349-11	s	PIN, CONNECTOR 3P
CN103	⚠1-506-349-11	s	PIN, CONNECTOR 3P
CN104	1-506-348-XX	s	PIN, CONNECTOR 3P
CN105	1-564-505-11	o	PLUG, CONNECTOR 2P
CN106	1-564-513-11	o	PLUG, CONNECTOR 10P
D151	8-719-911-19	s	DIODE 1SS119
D152	8-719-911-19	s	DIODE 1SS119
D153	8-719-911-19	s	DIODE 1SS119
D154	8-719-911-19	s	DIODE 1SS119
D155	8-719-911-19	s	DIODE 1SS119
D156	8-719-110-69	s	DIODE RD27ES-B4
D157,159	8-719-911-19	s	DIODE 1SS119
D201	8-719-110-09	s	DIODE RD8.2ES-B3
D202,203	8-719-911-19	s	DIODE 1SS119
D601	8-719-500-36	s	DIODE D2SB10
D602	8-719-110-50	s	DIODE RD18ES-B3
D603	8-719-511-40	s	DIODE S1VB40
F602	⚠1-532-776-21	s	FUSE 1A 125V
IC201	8-759-972-26	s	IC LM1881N
IC202	8-759-037-18	s	IC MC14577AP
IC601	8-759-013-09	s	IC MC7812CT
L151	1-459-313-00	s	COIL WITH CORE (HWC)
Q102	8-729-119-78	s	TRANSISTOR 2SC2603-E
Q103	8-729-119-78	s	TRANSISTOR 2SC2603-E
Q104	8-729-119-78	s	TRANSISTOR 2SC2603-E
Q105	8-729-119-78	s	TRANSISTOR 2SC2603-E
Q106	8-729-119-78	s	TRANSISTOR 2SC2603-E
Q107	8-729-119-76	s	TRANSISTOR 2SA1115P
Q108	8-729-119-76	s	TRANSISTOR 2SA1115P
Q109	8-729-119-78	s	TRANSISTOR 2SC2603-E
Q110	8-729-119-78	s	TRANSISTOR 2SC2603-E
Q111	8-729-119-76	s	TRANSISTOR 2SA1115P
Q112	8-729-119-78	s	TRANSISTOR 2SC2603-E
Q113	8-729-119-76	s	TRANSISTOR 2SA1115P
Q151	8-729-119-76	s	TRANSISTOR 2SA1115P
Q152	8-729-900-80	s	TRANSISTOR DTC114ES
Q153	8-729-900-80	s	TRANSISTOR DTC114ES
Q154	8-729-122-03	s	TRANSISTOR 2SA1220A-P
Q155	8-729-119-78	s	TRANSISTOR 2SC2603-E
Q156	8-729-119-76	s	TRANSISTOR 2SA1115P
Q157	8-729-119-78	s	TRANSISTOR 2SC2603-E
Q158	8-729-119-78	s	TRANSISTOR 2SC2603-E
Q160	8-729-119-78	s	TRANSISTOR 2SC2603-E
Q161	8-729-900-80	s	TRANSISTOR DTC114ES
Q601	8-729-122-03	s	TRANSISTOR 2SA1220A-P
Q602	8-729-119-78	s	TRANSISTOR 2SC2603-E
Q603	8-729-119-78	s	TRANSISTOR 2SC2603-E
R101	1-249-398-11	s	CARBON 27 5% 1/4W
R102	1-249-426-11	s	CARBON 5.6K 5% 1/4W
R103	1-249-419-11	s	CARBON 1.5K 5% 1/4W
R104	1-249-426-11	s	CARBON 5.6K 5% 1/4W
R105	1-249-433-11	s	CARBON 22K 5% 1/4W
R106	1-249-429-11	s	CARBON 10K 5% 1/4W
R107	1-249-406-11	s	CARBON 120 5% 1/4W
R108	1-249-419-11	s	CARBON 1.5K 5% 1/4W
R109	1-249-433-11	s	CARBON 22K 5% 1/4W
R110	1-249-429-11	s	CARBON 10K 5% 1/4W
R111	1-249-411-11	s	CARBON 330 5% 1/4W
R112	1-249-421-11	s	CARBON 2.2K 5% 1/4W
R113	1-249-433-11	s	CARBON 22K 5% 1/4W
R114	1-249-429-11	s	CARBON 10K 5% 1/4W
R115	1-249-417-11	s	CARBON 1K 5% 1/4W
R116	1-249-415-11	s	CARBON 680 5% 1/4W
R117	1-249-411-11	s	CARBON 330 5% 1/4W
R118	1-249-413-11	s	CARBON 470 5% 1/4W

(A-1 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R119	1-249-385-11	s	CARBON 2.2 5% 1/4W
R120	1-249-397-11	s	CARBON 22 5% 1/4W
R121	1-249-421-11	s	CARBON 2.2K 5% 1/4W
R122	1-249-421-11	s	CARBON 2.2K 5% 1/4W
R123	1-249-385-11	s	CARBON 2.2 5% 1/4W
R124	1-249-385-11	s	CARBON 2.2 5% 1/4W
R125	1-247-104-00	s	CARBON 75 5% 1/4W
R126	1-249-385-11	s	CARBON 2.2 5% 1/4W
R127	1-249-385-11	s	CARBON 2.2 5% 1/4W
R128	1-247-104-00	s	CARBON 75 5% 1/4W
R129	1-249-417-11	s	CARBON 1K 5% 1/4W
R151	1-249-411-11	s	CARBON 330 5% 1/4W
R152	1-249-435-11	s	CARBON 33K 5% 1/4W
R153	1-247-889-00	s	CARBON 270K 5% 1/4W
R154	1-249-434-11	s	CARBON 27K 5% 1/4W
R155	1-249-423-11	s	CARBON 3.3K 5% 1/4W
R156	1-249-425-11	s	CARBON 4.7K 5% 1/4W
R157	1-249-435-11	s	CARBON 33K 5% 1/4W
R158	1-249-414-11	s	CARBON 560 5% 1/4W
R159	1-249-426-11	s	CARBON 5.6K 5% 1/4W
R161	1-249-429-11	s	CARBON 10K 5% 1/4W
R162	1-249-426-11	s	CARBON 5.6K 5% 1/4W
R163	1-249-437-11	s	CARBON 47K 5% 1/4W
R164	1-249-428-11	s	CARBON 8.2K 5% 1/4W
R167	1-249-433-11	s	CARBON 22K 5% 1/4W
R168	1-249-421-11	s	CARBON 2.2K 5% 1/4W
R169	1-249-429-11	s	CARBON 10K 5% 1/4W
R201	1-247-899-11	s	CARBON 680K 5% 1/4W
R202	1-249-411-11	s	CARBON 330 5% 1/4W
R203	1-249-425-11	s	CARBON 4.7K 5% 1/4W
R204	1-249-440-11	s	CARBON 82K 5% 1/4W
R205	1-249-435-11	s	CARBON 33K 5% 1/4W
R206	1-247-104-00	s	CARBON 75 5% 1/4W
R207	1-249-417-11	s	CARBON 1K 5% 1/4W
R208	1-249-442-11	s	CARBON 510 5% 1/4W
R209	1-249-417-11	s	CARBON 1K 5% 1/4W
R210	1-249-442-11	s	CARBON 510 5% 1/4W
R211	1-249-422-11	s	CARBON 2.7K 5% 1/4W
R212	1-249-429-11	s	CARBON 10K 5% 1/4W
R213	1-249-406-11	s	CARBON 120 5% 1/4W
R601	1-249-426-11	s	CARBON 5.6K 5% 1/4W
R602	1-249-425-11	s	CARBON 4.7K 5% 1/4W
R604	1-249-419-11	s	CARBON 1.5K 5% 1/4W
R605	1-249-419-11	s	CARBON 1.5K 5% 1/4W
R606	1-249-417-11	s	CARBON 1K 5% 1/4W
R607	1-249-417-11	s	CARBON 1K 5% 1/4W
R608	1-249-419-11	s	CARBON 1.5K 5% 1/4W
R609	1-249-423-11	s	CARBON 3.3K 5% 1/4W
R610	1-249-423-11	s	CARBON 3.3K 5% 1/4W
R611	1-249-416-11	s	CARBON 820 5% 1/4W
RV601	1-238-014-11	s	RES, ADJ, CARBON 3.3K

H-1 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-636-269-11	o	PC BOARD, H-1
2pcs	4-391-059-01	s	TUBE, UL
D401	8-719-980-40	s	DIODE SLR-34MG3F

U-1 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-636-270-11	o	PC BOARD, U-1
CN306	1-946-453-11	o	HARNESS
D301	8-719-110-78	s	DIODE RD33ES-B2
D302	8-719-110-09	s	DIODE RD8.2ES-B3
D303	8-719-110-09	s	DIODE RD8.2ES-B3
D304	8-719-110-09	s	DIODE RD8.2ES-B3
D305	8-719-110-09	s	DIODE RD8.2ES-B3
D306	8-719-110-09	s	DIODE RD8.2ES-B3
D307	8-719-110-09	s	DIODE RD8.2ES-B3
R301	1-247-104-00	s	CARBON 75 5% 1/4W
SW301	1-571-738-11	s	SWITCH, SLIDE
SW302	1-570-056-11	s	SWITCH, SLIDE

PACKING MATERIALS & SUPPLIED ACCESSORIES

Ref. No. or Q'ty	Part No.	SP	Description
1	3-701-630-00	o	BAG, POLYETHYLENE
1	⚠3-752-273-01	s	MANUAL, INSTRUCTION (YS-W130)
1	3-752-273-11	s	MANUAL, INSTRUCTION (YS-W130P)
1	3-165-280-01	o	INDIVIDUAL CARTON
1	3-701-635-00	s	BAG, POLYETHYLENE
1	4-391-056-01	o	SHEET, PROTECTION
2	4-395-213-01	o	CUSHION